

CLAIMS

What is claimed is:

- 5 1. A processing method for forming silicide comprising:
 providing a semiconductor structure having a
semiconductor surface and an insulation surface;
 forming an epitaxial layer on said semiconductor
surface;
10 treating said semiconductor structure, wherein said
treating step is that the removal rate of said insulation surface is
faster than the removal rate of said epitaxial layer ;
 forming a metal layer on said epitaxial layer; and
 heating said epitaxial layer for forming silicide.
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2. The processing method according to claim 1, wherein
providing said semiconductor structure step comprises forming a
substrate and forming a gate electrode for forming a portion of said
semiconductor structure.
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3. The processing method according to claim 2, wherein forming
said semiconductor surface step comprises forming a doped region in
said substrate for forming a portion of said semiconductor surface.
- 25 4. The processing method according to claim 2, wherein forming
said semiconductor surface step comprises forming an upper surface on
said gate electrode for forming a portion of said semiconductor surface.

5. The processing method according to claim 2, wherein forming said insulation surface step comprises forming a spacer on the sidewall of said gate electrode for forming a portion of said insulation surface.

5 6. The processing method according to claim 2, wherein forming said insulation surface step comprises forming an insulation device in said substrate for forming a portion of said insulation surface.

10 7. The processing method according to claim 1, wherein forming said epitaxial layer comprises forming epitaxial silicon.

8. The processing method according to claim 1, wherein forming said epitaxial layer comprises forming an epitaxial silicon compound:

15 9. The processing method according to claim 1, wherein said treating step comprises executing wet etching for removing a portion of said insulation surface.

20 10. The processing method according to claim 9, wherein said wet etching comprises using fluorine-containing solution.

11. The processing method according to claim 1, wherein said treating step comprises executing dry etching for removing a portion of said insulation surface.

25 12. The processing method according to claim 11, wherein said dry etching comprises using a fluorine-containing compound.

13. The processing method according to claim 1, wherein forming said metal layer comprises forming a titanium (Ti) layer.

14. The processing method according to claim 1, wherein
5 forming said metal layer comprises forming a cobalt (Co) layer.

15. A processing method for forming silicide comprises:
providing a silicon substrate;
forming a polysilicon gate electrode on said silicon
10 substrate;
forming an insulation spacer on the sidewall of said polysilicon gate electrode;
forming an epitaxial layer on said silicon substrate and an upper surface of said polysilicon gate electrode;
15 etching a portion of said insulation spacer;
forming a metal layer on said epitaxial layer; and
heating said epitaxial layer for performing salicidation on said upper surface of said polysilicon gate electrode and said silicon substrate.

20 16. The processing method according to claim 15, wherein said etching step comprises executing wet etching with fluorine-containing solution.

25 17. The processing method according to claim 15, wherein said etching step comprises executing dry etching with fluorine-containing compound.